

## CLAIMS

What is being claimed:

1. A device for making automated transaction decisions comprising:
  - a memory to store a series of historical records and results, where each record contains a set of data values for a corresponding set of variables;
  - a transaction input unit to convey corresponding data values of a transaction for which a decision is to be made;
  - a decision output unit to convey a recommended decision;
  - a self-configuring modeler to configure itself based upon information stored in memory in order to predict expected results from any set of data values; and
  - a controller coupled to the modeler and the transaction input unit to generate a decision output.
2. The device in Claim 1 further including an output unit to convey a probability or expected value of an expected result given the decision.

3. The device in Claim 1 further including an output unit to convey a model produced by the modeler.
4. The device in Claim 1 further comprising a previously configured modeler.
5. The device in Claim 1 wherein the model is continuously updated with each transaction.
6. The device in Claim 5 wherein the modeler configures itself to recommend an optimal solution in a reduced time period.
7. A method for analyzing and representing data in a computer system comprising:
  - determining statistical probabilities of each combination of data values;
  - applying the statistical probabilities to determine an optimal predictive model;

applying a transaction consisting of a new set of data values to the predictive model in order to yield an expected set of probabilities for a result of each possible decision;

presenting the representation to a control mechanism capable of enacting decisions based on the knowledge represented; and generating a decision output.

8. The method in Claim 7 further comprising conveying an probability or expected value of the decision.

9. The method in Claim 7 further comprising means conveying a model produced by a modeler.

10. The method in Claim 7 wherein the predictive model is adjusted based upon each transaction and result.